BE GREEN

Second *Life*

OBO puts construction debris to new uses /// *By Beth Kempton*

We all throw things away, often not considering where these things end up. According to an Environmental Protection Agency estimate, Americans threw away 4.6 pounds of trash per person per day in 2007, nearly double the 1960 amount. At this rate, U.S. landfills will be full in 20 years. There is also a rising concern about running out of resources and the impact of toxins leaching from landfills.

Construction sites generate considerable landfill waste. According to an Environmental Protection Agency report, building-related construction and demolition debris accounts for nearly 26 percent of total non-industrial waste generated in the United States. At 160 million tons of construction waste a year, that's approximately three pounds of construction waste generated per American daily, according to the EPA.

To promote changes in what happens to construction waste, changes that might be implemented in the wider marketplace, the U.S. Green Building Council included consideration of what happens to a project's construction waste and materials when assessing its Leadership in Energy and Environmental Design, or LEED, system for rating buildings on their environmentalism. The council said reducing the waste shipped to landfills from construction sites is the most effective method of avoiding landfill build-up and the greenhouse gas emissions arising from waste incineration. The LEED system awards points for diverting 50 percent, 75 percent and 95 percent of construction waste to uses other than landfills.

Resource Recovery

Internationally, resources and incentives for diverting construction waste vary greatly by location. Many landfills charge per load dropped off, and contractors must consider tradeoffs between these "tipping fees" and paying those who haul waste to places where it can be recovered or reused. Materials most frequently recovered and recycled include concrete, asphalt, metals, wood and gypsum board. In many regions, "waste" materials have value, and some operations actually pay to receive the goods.

The Bureau of Overseas Buildings Operations has found that effective construction waste management requires a paradigm shift by the contractor, who must stop thinking of waste as a burden and consider it an asset.

In developing countries, one of OBO's general contractors, B.L. Harbert International, pioneered construction waste recycling on new embassy compound projects through a variety of waste-diversion methods. Harbert International allowed the local population to salvage materials at areas set up near project sites, and sorted excess materials were donated to charity projects.

In Brazzaville, the Congolese government was relocating the Makana II village, nine miles outside the city, as part of a highway construction project. Harbert International partnered with the

Piles of concrete stand ready for reuse after demolition of a U.S. facility in Addis Ababa, Ethiopia.

PHOTOGRAPHS: OVERSEAS BUILDINGS OPERATIONS

Top: Local residents gather near a completed home in the Makana II village. **Above:** Stockpiling of salvaged material from the demolition of the former U.S. diplomatic buildings gets under way in Addis Ababa. **Below:** A typical single-room home in the Makana II village is ready for use.

U.S. Agency for International Development, the Fuller Center for Housing and the International Partnership for Human Development to develop plans to build 30 new houses for the displaced Makana II residents.

Employees constructing Brazzaville's new embassy compound volunteered to design and build the homes, donated reusable materials from the new embassy compound project and transported construction materials to the homes project. This effort, plus the new embassy compound's onsite salvage areas and the donation of materials to local orphanages and school construction projects, meant that 95 percent of the new embassy compound construction waste did not go to landfills. Three of 39 points were awarded to the project for this effort, giving it a LEED-Gold rating, the first such award gained by the Department of State.

Harbert International has applied this waste management model to divert most of the construction waste generated on new embassy compound projects in Addis Ababa, Ethiopia; Antananarivo, Madagascar; and Lusaka, Zambia.

Relief Efforts

In more-developed countries, construction waste from new embassy compound projects is contributed to relief projects. For five years, Romania has faced severe recurring flooding, leaving thousands of people in temporary shelters. During floods in June 2010 alone, more than 16,000 people were evacuated from damaged and destroyed homes. To support post-flood housing reconstruction, general contractor American International Contractors, Inc., donated excess construction materials from the new embassy compound project in Bucharest to Habitat for Humanity Romania, which reused large delivery crates, plasterboard and oriented-strand board. The new embassy compound project, still under construction, continues this mutually beneficial relationship.

Globally, the diversion of surplus construction materials to prevent their going to landfills is an enormous opportunity for recycling and reuse. Discarded materials from major construction sites have financial value, and OBO contractors are diverting waste materials from landfills toward use in the local community. Although OBO is not a major builder in each host nation, its contractors are providing a sustainable example to the international community.

Since 2008, all new embassy compound projects have had to earn LEED certification. In 2010, OBO required new embassy compound projects to achieve LEED-Silver certification and to divert at least 50 percent of construction waste from going to landfills. These requirements support federal mandates by enforcing more stringent sustainable building practices. Effective construction waste management plays an important role in achieving this higher level of sustainability and conveys a message of eco-diplomacy through responsible natural resource management. ■

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